CLAIMS:

1. A signal processing method utilizing a partial response to record information on a medium

5 and then regenerate the information from the medium, wherein

a regeneration signal from the medium is subjected to an equalizing process including the convolution of

10 $(k - s \cdot D)$

where D: one (1) bit delay operator, and

k, s: positive integer, $k \neq s$.

2. The signal processing method according to

15 claim 1, wherein the information is decoded from the equalized signal by use of maximum-likelihood detection.

3. A signal processing circuit utilizing a

20 partial response to record information on a medium through a recording system and regenerate the information from the medium through a regenerating system, wherein

the regenerating system includes an

25 equalizer subjecting a regeneration signal from the medium to the convolution of

$(k - s \cdot D)$

where D: one (1) bit delay operator, and

k, s: positive integer, $k \neq s$.

4. The signal processing circuit according to

5 claim 3, wherein it comprises a

maximum-likelihood detector which decodes the

information from an output signal of the equalizer

by use of maximum-likelihood detection.

10 5. A signal recording/regenerating apparatus

utilizing a partial response to record

information on a medium through a recording system

and regenerate the information from the medium

through a regenerating system, wherein

15 the regenerating system includes an

equalizer subjecting a regeneration signal from

the medium to the convolution of

$(k-s \cdot D)$

where D: one (1) bit delay operator, and

20 k, s: positive integer, $k \neq s$.

6. The signal recording/regenerating apparatus

according to claim 5, wherein it comprises a

maximum-likelihood detector which decodes the

25 information from an output signal of the equalizer

by use of maximum-likelihood detection.

7. A signal processing method utilizing a partial response to record information on a medium and then regenerate the information from the medium, wherein

5   a record signal recorded on the medium is subjected to the convolution of

(1-D)

where D: one (1) bit delay operator, and wherein

10   a regeneration signal from the medium is subjected to an equalizing process including the convolution of

$(k-s \cdot D) \cdot (1+D)^n$

where D: one (1) bit delay operator,

15   k, s: positive integer, and

n: positive integer, except 2.

8. The signal processing method according to claim 7, wherein the information is decoded from

20 the equalized signal by use of maximum-likelihood detection.

9. A signal processing circuit utilizing a partial response to record information on a medium

25 through a recording system and regenerate the information from the m dium through a regenerating system, wherein

the recording system includes a circuit unit subjecting a record signal recorded on the medium to the convolution of

(1-D)

5   where D: one (1) bit delay operator, and wherein

the regenerating system includes an equalizer subjecting an output signal from the medium to the convolution of

10    $(k-s \cdot D) \cdot (1+D)^n$

where D: one (1) bit delay operator,

k, s: positive integer, and

n: positive integer, except 2.

15   10. The signal processing circuit according to claim 9, wherein it comprises a maximum-likelihood detector which decodes the information from an output signal of the equalizer by use of maximum-likelihood detection.

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11. A signal recording/regenerating apparatus utilizing a partial response to record information on a medium through a recording system and regenerate the information from the medium

25   through a regenerating system, wherein

the recording system includes a circuit unit subjecting a record signal record d on the medium

to convolution of

(1-D)

where D: one (1) bit delay operator, and wherein

the regenerating system includes an

5   equalizer subjecting a regeneration signal from

the medium to the convolution of

$(k-s \cdot D) \cdot (1+D)^n$,

where D: one (1) bit delay operator,

k, s: positive integer, and

10   n: positive integer, except 2.

12.   The signal recording/regenerating apparatus

according to claim 11, wherein it comprises a

maximum-likelihood detector which decodes the

15   information from an output signal of the equalizer

by use of maximum-likelihood detection.